

## FREQUENCY OF ABO BLOOD GROUPS IN CONSANGUINEOUS MARRIAGES IN THE MUSLIMS OF PURNIA, BIHAR

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Effect of consanguinity on the phenotypic and allelic frequencies of ABO blood groups in muslims of Purnia was studied. Nonconsanguineous population served as control. Distribution of ABO blood groups showed a predominance of blood group B and O. A trend of  $B > A > O > AB$  was observed in nonconsanguineous and  $O > B > A > AB$  in consanguineous populations, respectively. The alteration in phenotypic distribution indicates a trend of selection of recessive trait due to consanguinity.

Blood groups in man are excellent traits of population genetic studies. The inheritance of specific blood groups A B O is known to depend on a particular locus, known as A B O locus which is located on chromosome number 9 (Taludker & Sharma, 1979). The A, B and O produce four different types blood groups - A, B, AB and O. Every individual gets two alleles from parent for one phenotype such as  $I^A I^A$  or  $I^A I^O$  for A,  $I^B I^B$  or  $I^B I^O$  for B,  $I^A I^B$  for A, B and  $I^O I^O$  for O. Again A has also been subdivided into  $A_1$ ,  $A_2$  and  $A_3$ .  $A_1$  is dominant over  $A_2$  and  $A_3$  (Rothwell, 1977). Apparent changes in one's A B O phenotype are associated with pathologic condition (Salmon *et al.*, 1967). The blood group has been used by many workers in genetic studies such as Mc Arther & Penrose, 1951; Vogel, 1970; Kaur & Bansal, 1954; Sharma *et al.*, 1985; Ahmad *et al.*, 1989). The present work deals with the effect of consanguineous marriages and the genotypic and allelic frequencies of A B O blood groups of muslims of Purnia district.

For the present work blood samples collected from different localities of Purnia. The blood groups were determined by slide agglutination methods. The antisera was obtained from the local sera and vaccine centre. For convenience the subgroup of A was ignored while collecting the data in the present work.

The frequency of the A B O blood groups with their allelic frequency (%) have been Tabulated (Tables I & II). The blood group AB was lowest in both the populations. Blood group B had the highest frequency (30.67%) in nonconsanguineous population while group O had the highest frequency in consanguineous population. The calculation of genotypic frequencies for A B O blood group by Hardyweinberg law, revealed the highest frequency of group B (33.85) in nonconsanguineous population. The allelic frequency of  $I^O$  in nonconsanguineous and consanguineous was found to be 30.12 and 35.73, respectively. Thus it indicates an upward trend of group O which might be due to consanguinity (Ahmad *et al.*, 1989).

The estimates of the effects of consanguinity on the polymorphic traits of the muslims of northern India are non-existent (Ahmed *et al.*, 1989). But in the present investigation there is a significant decrease in the frequencies of AB, B and A as compared to O. It is thus concluded that due to consanguinity group A and B have been

reduced while homozygous recessive O has increased. All the phenotypes except O have heterogeneity.

Table I. Frequency of A B O blood groups.

Types of blood group	Nonconsanguineous		Consanguineous	
	(n)	(%)	(n)	(%)
A	118	28.50	102	24.64
B	127	30.67	116	28.02
AB	43	10.38	40	9.66
O	126	30.43	156	37.68

Table II. Allelic frequency for A B O blood groups.

Population	$I^A(P)$	$I^B(q)$	$I^O(r)$
Nonconsanguineous	33.85	36.03	30.12
Consanguineous	33.43	33.84	35.73

### ACKNOWLEDGEMENTS

Authors are thankful to Dr. G.P. Diwakar for his help in the determination of blood groups.

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